ATS106

Automatic Transfer Switch Control Module

Operating Manual

Ver1.0 Date: 2012/12/26

ATS106 Series

Software Version

Date	Version	Note
2012-12-26	1.0	Original release.

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LIXISE SMART GENSET

1. Summary

ATS106 is an Automatic Transfer Switch Control Module.The module features 32 -Bit microprocessor control.Once mains AC supply failure are detected (under voltage, over voltage), The module will control generator to start . If generator AC can load, The module automatically transfer the switch to generator AC supply.

2. Features

- Micro-processor based design;
- Meter two single -phase AC Voltages ;
- Set AUTO or MANUAL via PUSH BOTTON mounted on the front panel;
- Two isolable N designed ;
- 7 LEDs display the status ;
- Operational timers can be altered by PC;
- Control generator to Start.

3. Specification

- **DC supply:** 8 to 35V(1.5VA)
- **Single -phase AC input :** AC30～277V (+20%) 50/60Hz
- **Relay output:**

  Relay of close mains & close gens: 16A 250VAC
  Relay of start generator: 5A 250VAC
- **Delay timers :**

  Mains Normal delay time: 0~3 600s
  Mains Abnormal delay time: 0~3600s
  Gens Normal delay time: 0~3600s
  Start generator time:0~3600s(after Mains is abnormal)
  Stop generator time: 0~3600s(after Mains is normal)
  Close time:0~20.0s
  Over close time: 0~5.0s
  Between close time: 0~3600s
- **Critical value：**

  Mains under voltage: 0~360V
  Mains over voltage:0~360V
  Gens under voltage:0~360V
  Gens over voltage:0~360V
  Gens under frequency : 0~60.0Hz
  Gens over frequency : 51.0~75.0Hz
- **Accessorial input：** state can be altered by PC
- **Operating Temperature Range:** -30 to +70℃

4. Display symbol and operation

4.1. Push button

Symbol	Define	Description
CLOSE MAINS	Mains close button	At MAN state,push this button，ATS will turn to the mains
MAN/AUTO	MAN/AUTO state switch button	Switch the state to MAN or AUTO
CLOSE GENS	Generator close button	At MAN state ,push this button，ATS will turn to the Generator

4.2. LED

Symbol	Define	Description
POWER	Power led	Lighten when DC supply. Flicker when load switch failure.
AUTO	Auto state led	Lighten when Module at auto state.
MANUAL	Man state led	Lighten when Module at man state.
MAINS NORMAL	Mains normal led	1.Light off when no mains. 2.Flicker when mains is abnormal. (under voltage, over voltage) 3.Lighten when Mains is normal.
MAINS CLOSED	Mains closed led	1.Light off when load is not on mains. 2.Flicker when load in the closing process. 3.Flicker when load in the opening process 4.Lighten when load is closing successful
GENS NORMAL	Generator normal led	1.Light off when no gens. 2.Flicker when gens is abnormal. (under voltage, over voltage) 3.Lighten when gens is normal.
GENS CLOSED	Generator closed led	1.Light off when load is not on mains. 2.Flicker when load in the closing process. 3.Flicker when load in the opening process 4.Lighten when load is closing successful

4.3. Operation

Module has two states: **MANUAL** state and **AUTO** state: the state can be switch by **MANUAL /AUTO** button, the state can be display by **MANUAL** state led and **AUTO** state led.

4.3.1. Manual state

When Man state led is lighten, the module is at man state. Here, push (CLOSE Mains) button ,the relay of close mains will output, push (CLOSE Gens) button, the relay of close Generator will output. A t this state, the relay of start generator is unable.

4.3.2. Auto state

- When Auto state led is lighten, the module is at auto state. Here.
- When mains is normal, ATS will turn to the mains after the Mains Normal delay time.
- When mains is abnormal(under voltage, over voltage, lost voltage), after the Mains Abnormal delay time and Start generator time the relay of start generator will output and the generator will start. If the Generator is normal, ATS will turn to the Generator after the G ens Normal delay time.
- When mains is normal, ATS will turn to the mains after the Mains Normal delay time.
- When mains is normal, the relay of start generator will be unable and the generator will st op after the Stop generator time.

5. Parameters table(only adjust via pc)

Set the content as follows:

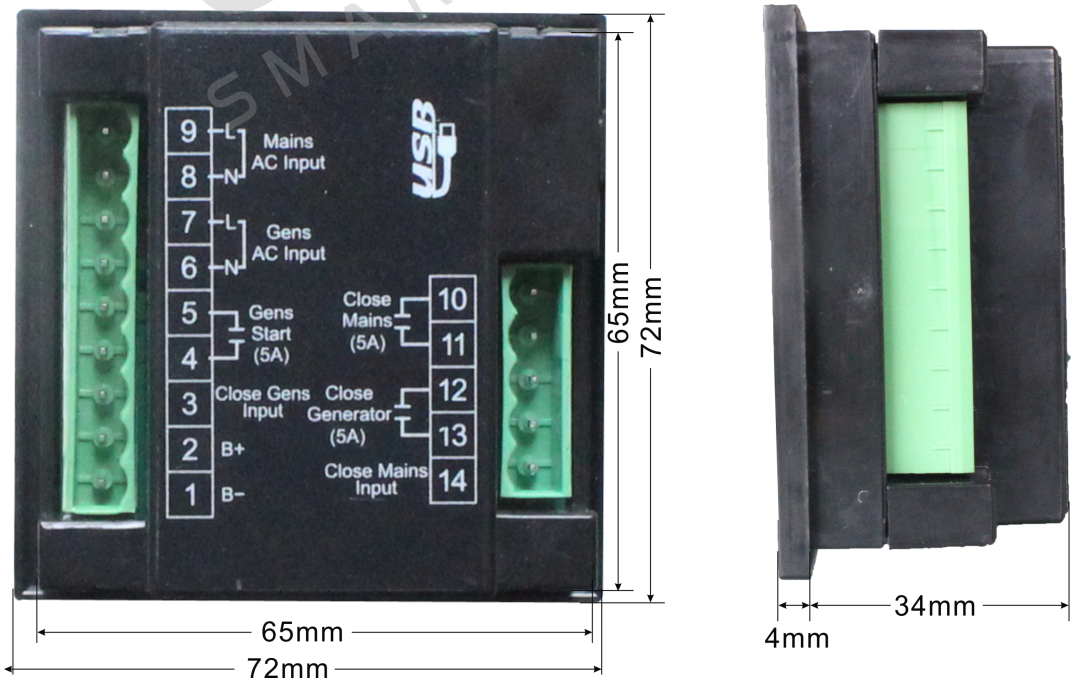
NO.	Items	Defaults	Unit	Description
1	Mains normal delay	0-3600S (10)	S	It is the delay of Mains power from abnormal to normal.
2	Gens normal delay	0-3600S (10)	S	It is the delay of Mains power from abnormal to normal.
3	Mains abnormal delay	0-3600S (5)	S	It is the delay of Mains power from normal to abnormal.
4	Start Gens Delay	0-3600S (1)	S	It is the delay from Mains power is abnormal to send out start generator signal.
5	Stop Gens Delay	0-3600S (5)	S	It is the delay from Mains power is normal to send out stop generator signal.
6	ATS close time	0-20.0S(5.0)	0.1S	Breaker close pulse. If it is set to zero, the output will held.
7	Transfer rest time	0-3600S (1)	S	When set “ATS close time” to zero, it is the waiting delay from mains open to gens closed or from gens open to mains close.
8	Exceed Convert Time	0-5.0S(0)	0.1S	After the module has received a close state input, the breaker close output continue to held until the delay is expended.
9	Mains over voltage	0-360V (276)	V	The setting are used to configure the Mains power over voltage point.
10	Mains under voltage	0-360V (184)	V	The setting are used to configure the Mains power under voltage point.
11	Gens over voltage	0-360V (264)	V	The setting are used to configure the Gens power over voltage point.
12	Gens under voltage	0-360V (192)	V	The setting are used to configure the Gens power under voltage point.
13	Gens over frequency	51-75Hz(55.0)	0.1HZ	When the frequency of Gens power is over than the point, over frequency is active.
14	Gens under frequency	0-60Hz(45.0)	0.1HZ	When the frequency of Gens power is low than the point, low frequency is active.
15	Switch closing state	Unchecked/ Check: (Check)		When set to switch closing state is not connected, the panel switch status indicator on the state of the mains or Gens is generated by relay operation.

✧ **Note:** The contents of parameter settings to factory default values in parentheses.

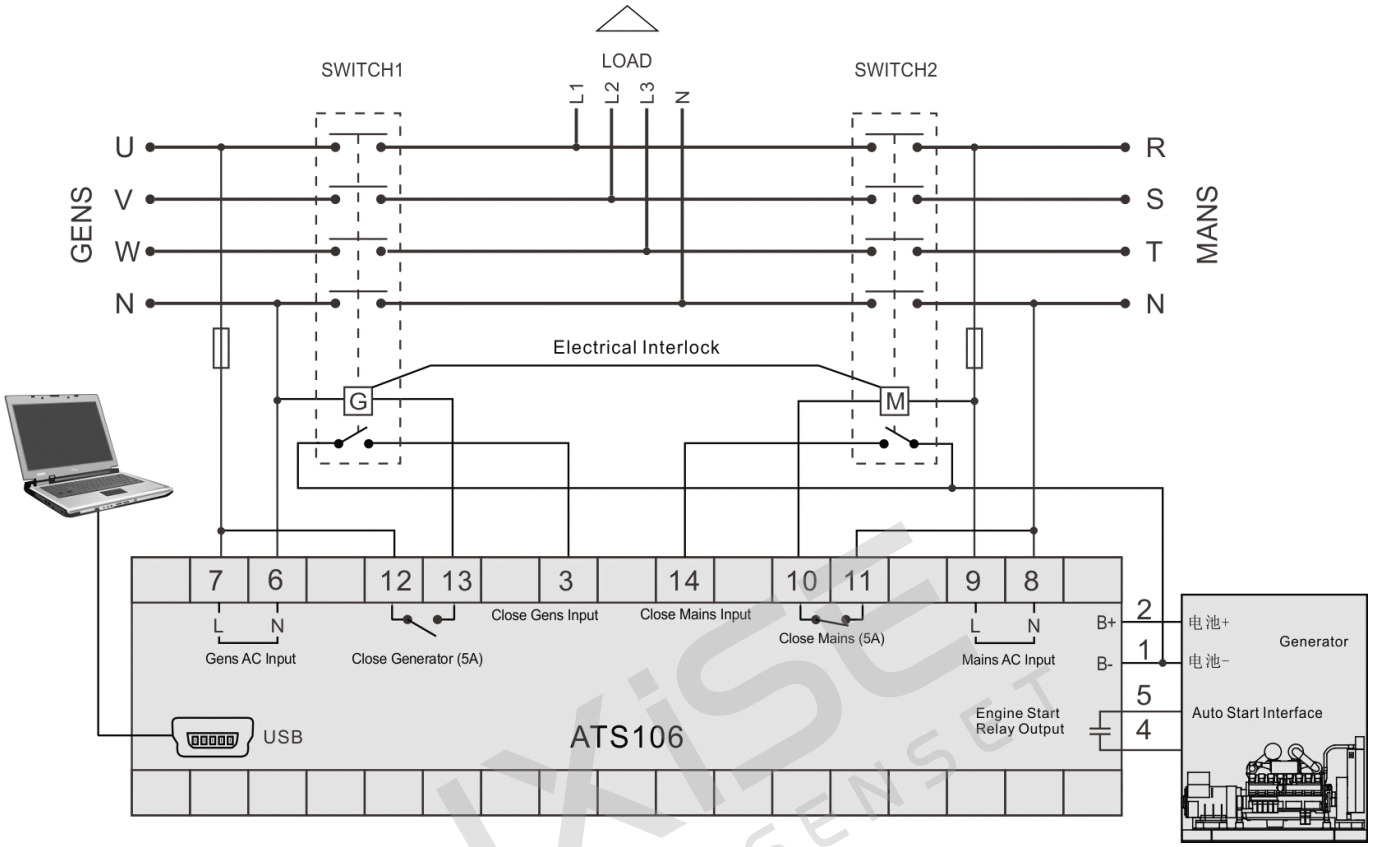
6. Terminal

- **Terminal 1（B -）：** connect to the cathode of battery.
- **Terminal 2（B+）：** connect to the anode of battery.
- **Terminal 3（Close Gens Input）：** Gens supply closed auxiliary input, connect to (B -) is active.
- **Terminal 4、5（Gens Start Output）：** output of Relay of start gens (volts free , 5A250V).
- **Terminal 6、7（Gens AC Input）：** Gens AC Input.
- **Terminal 8、9（Mains AC Input）：** Mains AC Input.
- **Terminal 10、11（Close Mains Output）：** output of Relay of close mains (volts free ,5A250V).
- **Terminal 12、13（ Close Generator Output）：** output of Relay of close generator (volts free ,5A250V).
- **Terminal 14（Close Mains Input）：** Mains supply closed auxiliary input, connect to (B-) is active.
- **USB Interface：** For the controller directly through the USB cable to the computer for parameter programming.

7. Case dimensions(hole: 67*67mm)



8. Typical application



9. Product packaging

This product should be following sets:

（1） 1 piece of controller model **ATS106**;

（2） 2 pieces of fixed cards;

（3） 1 piece of product certificate;

（4） 1 piece of product manual.

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